

22. (New) The component support assembly of 20, wherein said rigid double-shell box structure further comprises rigid impact absorbing foam.

IN THE ABSTRACT

Please amend the Abstract as shown on the marked-up copy following this amendment.

ABSTRACT OF THE DISCLOSURE

A vehicle door, including a door structure, an equipment support structure which can be fixed to the structure, and a interior trim lining. The equipment support includes first and second rigid shells joined to form a rigid double-shell box structure, the outer surface of which is parallel and close to the line along which the window glass moves and the inner surface of which is equipped with attachment devices for mounting equipment inside the vehicle door.

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 10, 12-15, and 17-22 are presently active in this case, Claims 1-8, 11, and 16 having been canceled, Claims 10 and 15 having been amended, and Claims 20-22 having been added by way of the present amendment.

The changes to Claims 10 and 15 are fully supported by the specification, including the claims, as originally filed, and are not believed to raise an issue of new matter.¹

¹Specification, page 4, line 20 to page 5, line 15, and Figure 1, for example.

Likewise, new Claims 20-22 are fully supported by the specification, including the claims, as originally filed, and are not believed to raise an issue of new matter.²

In the outstanding Office Action, the drawings were objected to for failing to comply with 37 C.F.R. §1.83(a); the specification was objected to for containing informalities in the Abstract; Claims 1-8 and 10-19 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite; Claims 10-12 and 14 were rejected under 35 U.S.C. §102(b) as being unpatentable over Kurihara et al. (U.S. Patent No. 4,905,860, hereinafter Kurihara); Claims 1-7, 15-17, and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto et al. (U.S. Patent No. 5,819,473, hereinafter Hashimoto) in view of Kurihara; Claims 8 and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto in view of Kurihara in further view of Finch et al. (U.S. Patent No. 3,989,275, hereinafter Finch); and Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kurihara in view of Finch.

In response to the rejection of Claims 1-8 and 10-19 under 35 U.S.C. §112, second paragraph, Claims 1-8, 11, and 16 have been canceled, and Claims 10 and 15 have been amended to further clarify the claimed invention. Accordingly, Applicant believes that Claims 10, 12-15, and 16-19, as amended, are definite and comply with the requirements of 35 U.S.C. §112, second paragraph, and would fairly apprise one of ordinary skill in the art of the metes and bounds of the claimed invention.

Recapitulating briefly, the claimed invention is directed to a vehicle door.³ As recited in amended independent Claim 10, features of the claimed invention include a rigid double-shell box structure, the rigid double-shell box structure comprising *a first rigid shell structure*

²Specification, page 4, line 20 to page 5, line 15, and Figure 1, for example.

³Specification, page 1, line 1, for example.

and a second rigid shell structure, the first rigid shell structure comprising a support plate configured to define an open box-like volume within the first rigid shell support structure, the second rigid shell structure comprising a support plate configured to be fixedly joined to the first rigid shell structure, such that when the first rigid shell structure and the second rigid shell structure are fixedly joined, *the first rigid shell structure and the second rigid shell structure define a closed box-like volume* within the rigid double-shell box structure. An advantage of the claimed invention over the background art is that the box structure is highly rigid and resistant to warping.⁴

In accordance with the suggestion made at page 9, line 7 in the outstanding Office Action to better define what structure comprises the “double shell box structure,” the invention defined by independent Claims 10, 15, and 20 recites the feature “rigid double shell box structure comprising a first rigid shell structure and a second rigid shell structure.” The first rigid shell structure is further defined as comprising “a support plate configured to define an open box like volume.” As a result of this claimed structure, the first rigid shell has increased strength and rigidity and also allows for easy installation of vehicle equipment within the volume defined by the claimed first rigid shell.

The second rigid shell structure is further defined as comprising “a support plate configured to be fixedly joined to the first rigid shell structure such that when the first and second rigid shell structures are fixedly joined, the joined shells define a closed box like volume.” The claimed invention thus has the advantage of the increased strength and rigidity provided by the second rigid shell, so that installed equipment is protected during the manufacturing process after it has been installed within the box volume of the double shell structure. In addition, the rigid double shell structure, including the installed vehicle

⁴Specification, page 4, lines 9-11, for example.

equipment, can be moved independently, thus allowing for an advantageous flexibility in the vehicle manufacturing process. This is because the claimed rigid double shell structure, including the first and second shells, will not warp or deform under the load of the installed equipment.

Attention is now directed to the patentability of amended Claim 10 over the Kurihara, Hashimoto, and Finch references, whether taken alone or in proper combination.

Kurihara is directed to a speaker box.⁵ In Figure 1, Kurihara discloses speaker box 10 including a generally disc-shaped main body 12, a rectangular or box-like section 14 formed integrally with the main body 12, and a projecting section 16 formed integrally with the rectangular section 14. The main body 12, rectangular section 14 and projecting section 16 are not formed separately but, as shown in the sectional view of FIG. 3, are formed integrally with each other.⁶ Kurihara discloses that speaker box 10 is molded as *a single, integral unit* and is *not composed of a plurality of components*.⁷

Therefore, Kurihara does not disclose or suggest a rigid double-shell box structure, the box structure comprising *a first rigid shell structure and a second rigid shell structure*, the first rigid shell structure comprising a support plate configured to define an open box-like volume within the first rigid shell structure, the second rigid shell structure comprising a support plate configured to be fixedly joined to the first rigid shell structure, such that when *the first rigid shell structure and the second rigid shell structure are fixedly joined, the first rigid shell structure and the second rigid shell structure define a closed box-like volume within the rigid double-shell box structure*, as recited in amended independent Claim 10.

⁵Kurihara at column 1, lines 6-8.

⁶Kurihara at column 2, lines 13-21, and Figures 1 and 3.

⁷Kurihara at column 2, lines 24-26.

Therefore, Applicant respectfully submits that amended independent Claim 10, and dependent Claims 12-14, are patentably distinguishable over Kurihara.

Hashimoto is directed to a vehicle door.⁸ In Figure 1, Hashimoto discloses vehicle door D is mainly constituted by an outer panel 10, a door module 100 comprising an inner panel 110 and door equipment integrally formed with the inner panel, and an inner trim 20 for covering an interior side of the inner panel 110. The door equipment is attached to a surface of the inner panel 110 confronting the outer panel 10. The door equipment is arranged so as to be positioned in a space S which is formed between the outer panel 10 and the inner panel 110.⁹ Hashimoto discloses that door module 100 for a vehicle is prepared so that the glass window 120, a regulator 130, front and rear lower sashes, a door lock 133, harness and a speaker 134 are attached to the inner panel 110 in a modular construction, and that the door module with those parts integrally attached thereto can be assembled to the outer panel 10. Since a side of the inner panel 110 facing the outer panel 10 has the door equipment such as the window glass 120 attached thereto, the door equipment can be stored in the space S in the door which is formed by the outer panel 10 and the inner panel 110.¹⁰

However, Hashimoto does not disclose or suggest a rigid double-shell box structure, the rigid double-shell box structure comprising a *first rigid shell structure and a second rigid shell structure*, the first rigid shell structure comprising a support plate configured to define an open box-like volume within the first rigid shell structure, the second rigid shell structure comprising a support plate configured to be fixedly joined to the first rigid shell structure, such that when the first rigid shell structure and the second rigid shell structure are fixedly

⁸Hashimoto at column 1, lines 6-8.

⁹Hashimoto at column 3, lines 51-59, and Figure 1.

¹⁰Hashimoto at column 5, lines 34-45, and Figure 1.

joined, *the first rigid shell structure and the second rigid shell structure define a closed box-like volume within the rigid double-shell box structure*, as recited in amended independent Claim 10. Therefore, Applicant respectfully submits that amended independent Claim 10, and dependent Claims 12-14, are patentably distinguishable over Hashimoto, whether taken alone or in proper combination with Kurihara.

Finch is directed to the provision of energy absorbing means in the interior of vehicles for reducing the severity of injuries to a driver or passenger on impact with the vehicle's interior during an accident.¹¹ In Figure 1, Finch discloses a moulding of hard rigid polyurethane foam 11. The moulding has a plurality of projections 14 extending to the rear face and forming rib-like walls that define a number of discrete cavities 13 below those areas of the pad which might be hit by a vehicle occupant in an accident. The moulding 11 is covered on its front face by a layer of force distributing semi-rigid polyurethane foam 12 which is covered by a vacuum formed polyvinyl chloride trim material 15.¹²

However, Finch does not disclose or suggest a rigid double-shell box structure, the rigid double-shell box structure comprising *a first rigid shell structure and a second rigid shell structure*, the first rigid shell structure comprising a support plate configured to define an open box-like volume within the first rigid shell structure, the second rigid shell structure comprising a support plate configured to be fixedly joined to the first rigid shell structure, such that when the first rigid shell structure and the second rigid shell structure are fixedly joined, *the first rigid shell structure and the second rigid shell structure define a closed box-like volume within the rigid double-shell box structure*, as recited in amended independent Claim 10. Therefore, Applicant respectfully submits that amended independent Claim 10,

¹¹Finch at column 1, lines 5-9.

¹²Finch at column 2, lines 13-24, and Figure 1.

and dependent Claims 12-14, are patentably distinguishable over Finch, whether taken alone or in proper combination with the Kurihara and Hashimoto references.

Attention is now directed to the patentability of independent Claims 15 and 20 over the Kurihara, Hashimoto, and Finch references, whether taken alone or in proper combination.

Features of the invention defined by amended independent Claim 15 include a rigid double-shell box structure, the box structure comprising a first rigid shell structure and a second rigid shell structure, the first rigid shell structure comprising a support plate configured to define an open box-like volume within the first rigid shell structure, the second rigid shell structure comprising a support plate configured to be fixedly joined to the first rigid shell structure, such that when the first rigid shell structure and the second rigid shell structure are fixedly joined, the first rigid shell structure and the second rigid shell structure define a closed box-like volume within the rigid double-shell box structure. Independent Claim 20 defines substantially the same features. Therefore, Applicant respectfully submits that independent Claims 15 and 20, and dependent Claims 17-19, 21, and 22, are patentably distinguishable over the Kurihara, Hashimoto, and Finch references, for at least the same reasons given above for amended independent Claim 10.


In response to the objection to the drawings, Applicant will file formal drawings effectuating the noted drawing changes once the case is allowed.

In response to the objection to the specification, the specification has been amended in the Abstract to correct the noted informalities. Applicant submits that no new matter has been introduced.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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IN THE CLAIMS

Please amend the claims as shown below.

Please cancel Claims 1-8.

10. (Amended) A component support assembly for a vehicle door, comprising:

[a rigid double-shell box structure, said box structure comprising at least two continuous walls spaced apart and parallel to an outer wall of said vehicle door and configured to form at least one hollow section;]

a first rigid shell structure and a second rigid shell structure,

said first rigid shell structure comprising a support plate configured to define an open box-like volume,

said second rigid shell structure comprising a support plate configured to be fixedly joined to said first rigid shell structure, such that when said first rigid shell structure and said second rigid shell structure are fixedly joined, said first rigid shell structure and said second rigid shell structure define a closed box-like volume within said rigid double-shell box structure;

wherein said rigid double-shell box structure is configured to fit within said vehicle door and to be fixedly attached to said vehicle door, and

wherein said rigid double-shell box structure is configured to provide independent structural support for a plurality of vehicle door components fixedly attached to said rigid double-shell box structure.

11. (Cancel)

15. (Amended) A vehicle door, comprising:

an outer panel configured to be mounted on a vehicle body;

a component support assembly, comprising

[a rigid double-shell box structure, said box structure comprising at least two continuous walls spaced apart and parallel to an outer wall of said vehicle door and configured to form at least one hollow section;]

a rigid double-shell box structure, said rigid double-shell box structure comprising

a first rigid shell structure and a second rigid shell structure,

said first rigid shell structure comprising a support plate configured to define an open box-like volume,

said second rigid shell structure comprising a support plate configured to be fixedly joined to said first rigid shell structure, such that when said first rigid shell structure and said second rigid shell structure are fixedly joined, said first rigid shell structure and said second rigid shell structure define a closed box-like volume within said rigid double-shell box structure;

wherein said rigid double-shell box structure is configured to fit within said outer panel and to be fixedly attached to said outer panel, and

wherein said rigid double-shell box structure is configured to provide independent structural support for a plurality of vehicle door components fixedly attached to said rigid double-shell box structure; and

an interior lining.

16. (Cancel)

Please add new Claims 20-22.